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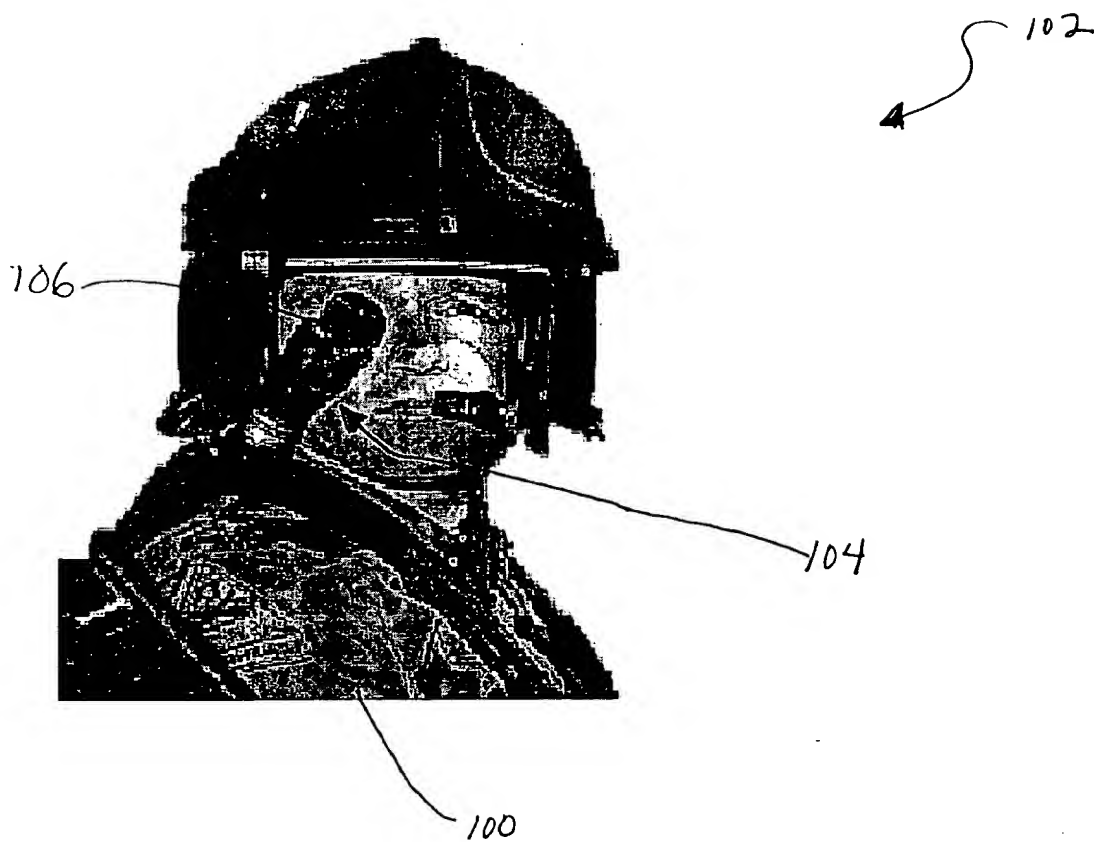
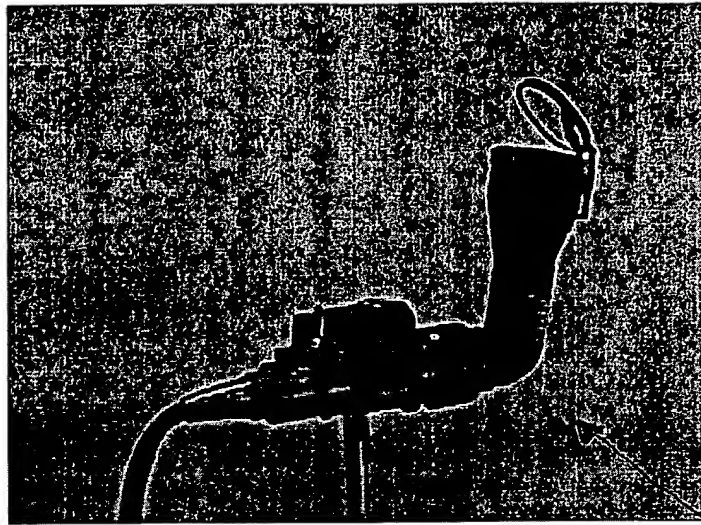


FIG. 1



104

FIG. 2

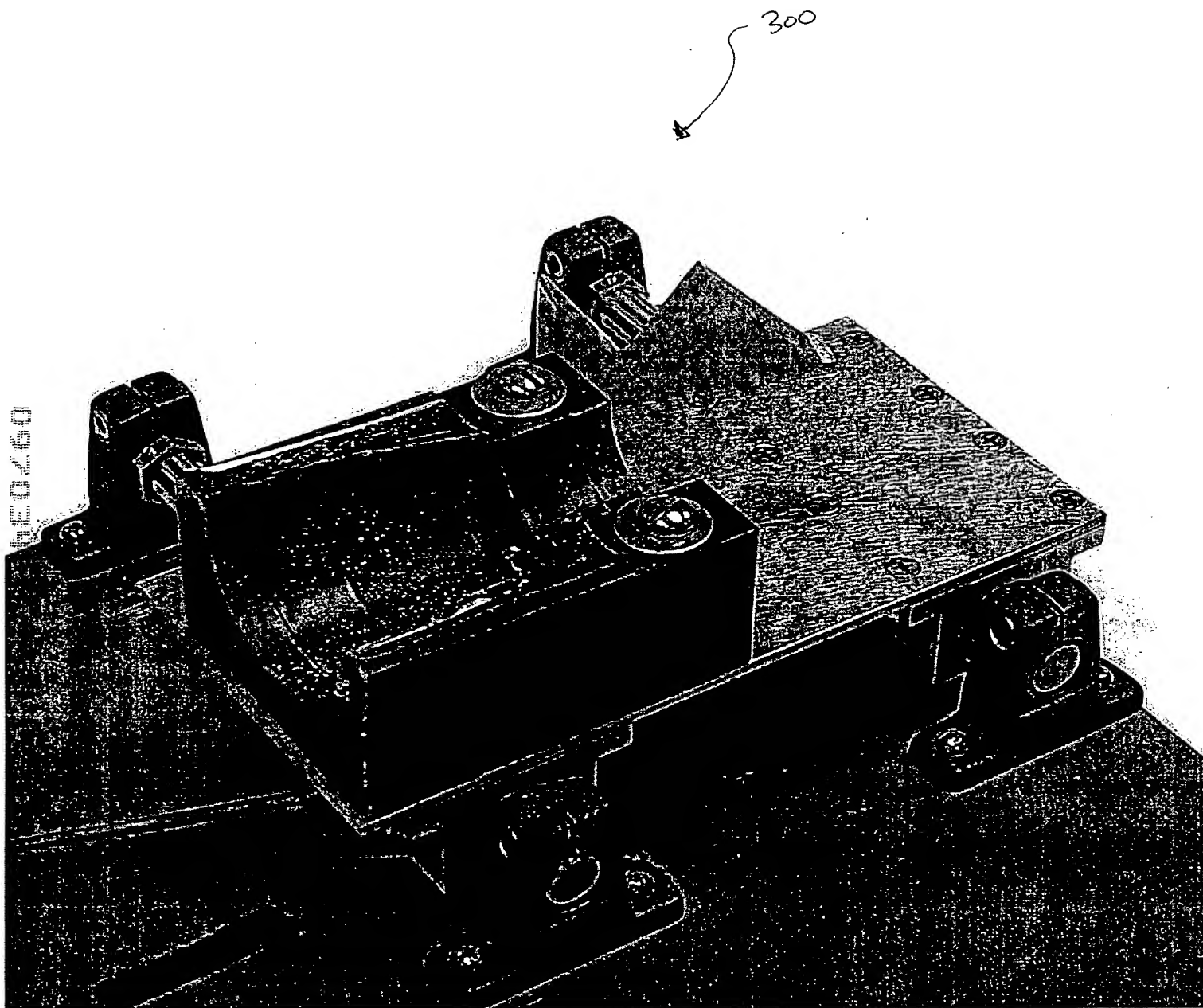
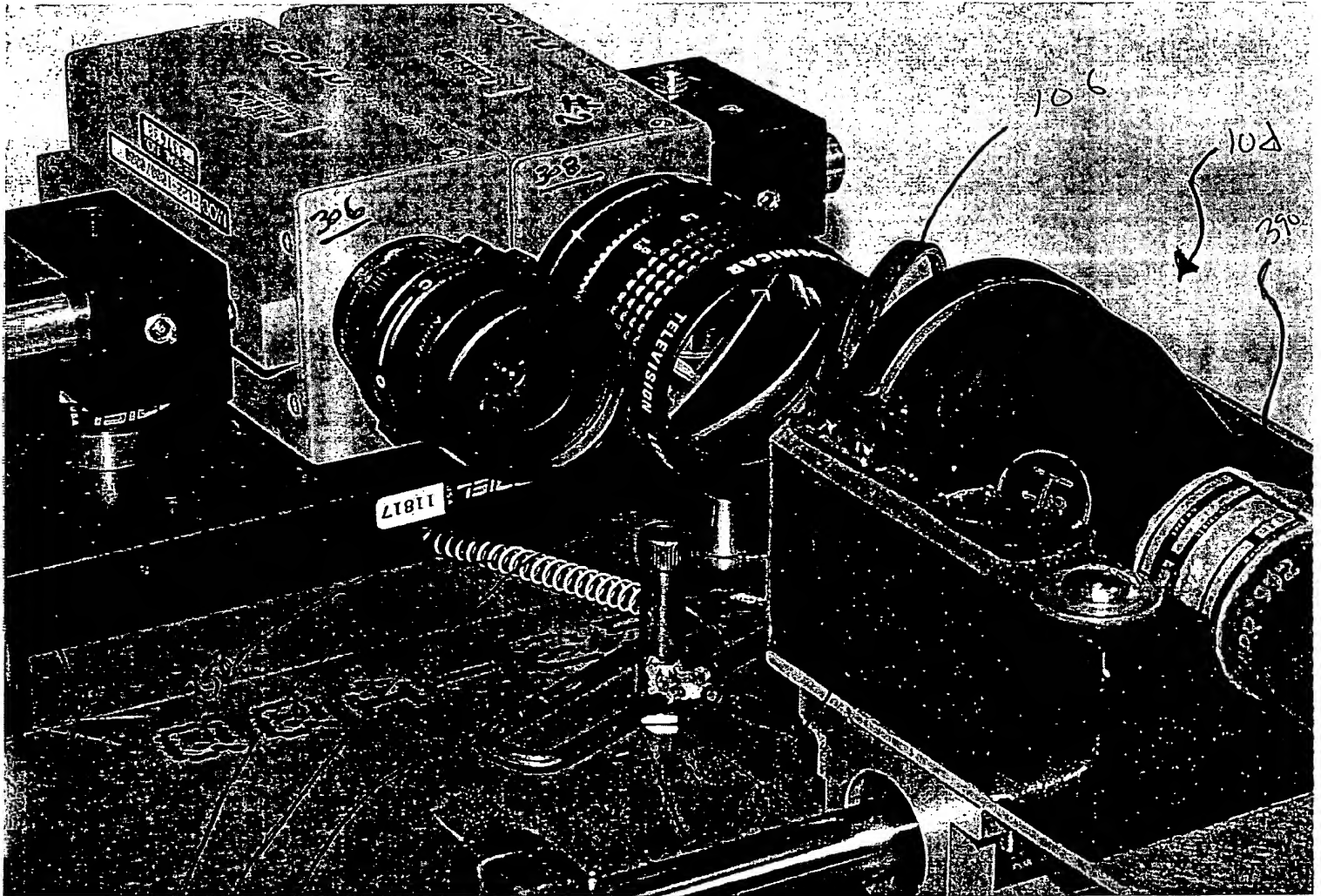
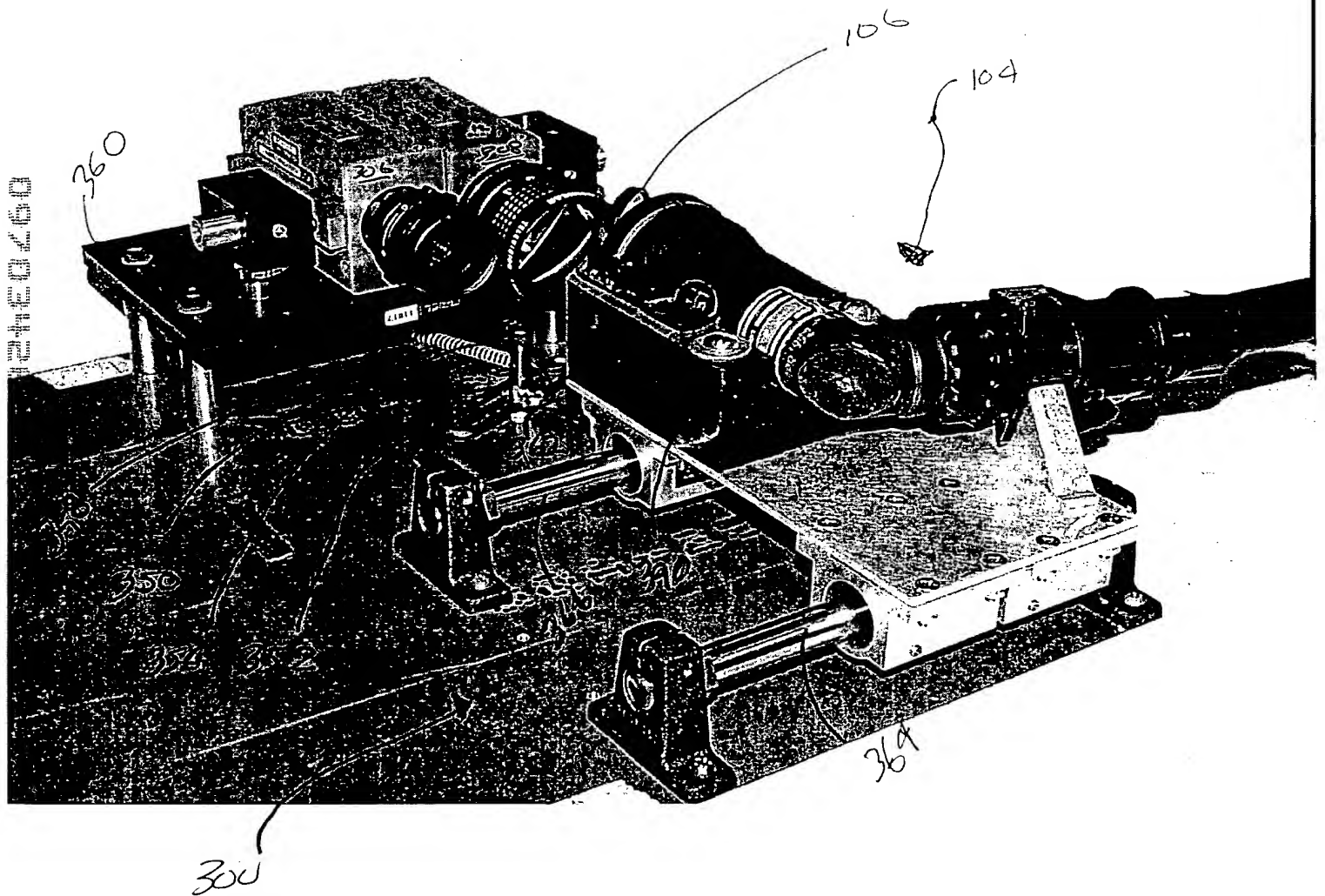


FIG 3A



350
352
356

FIG. 3B



F 16 3 c

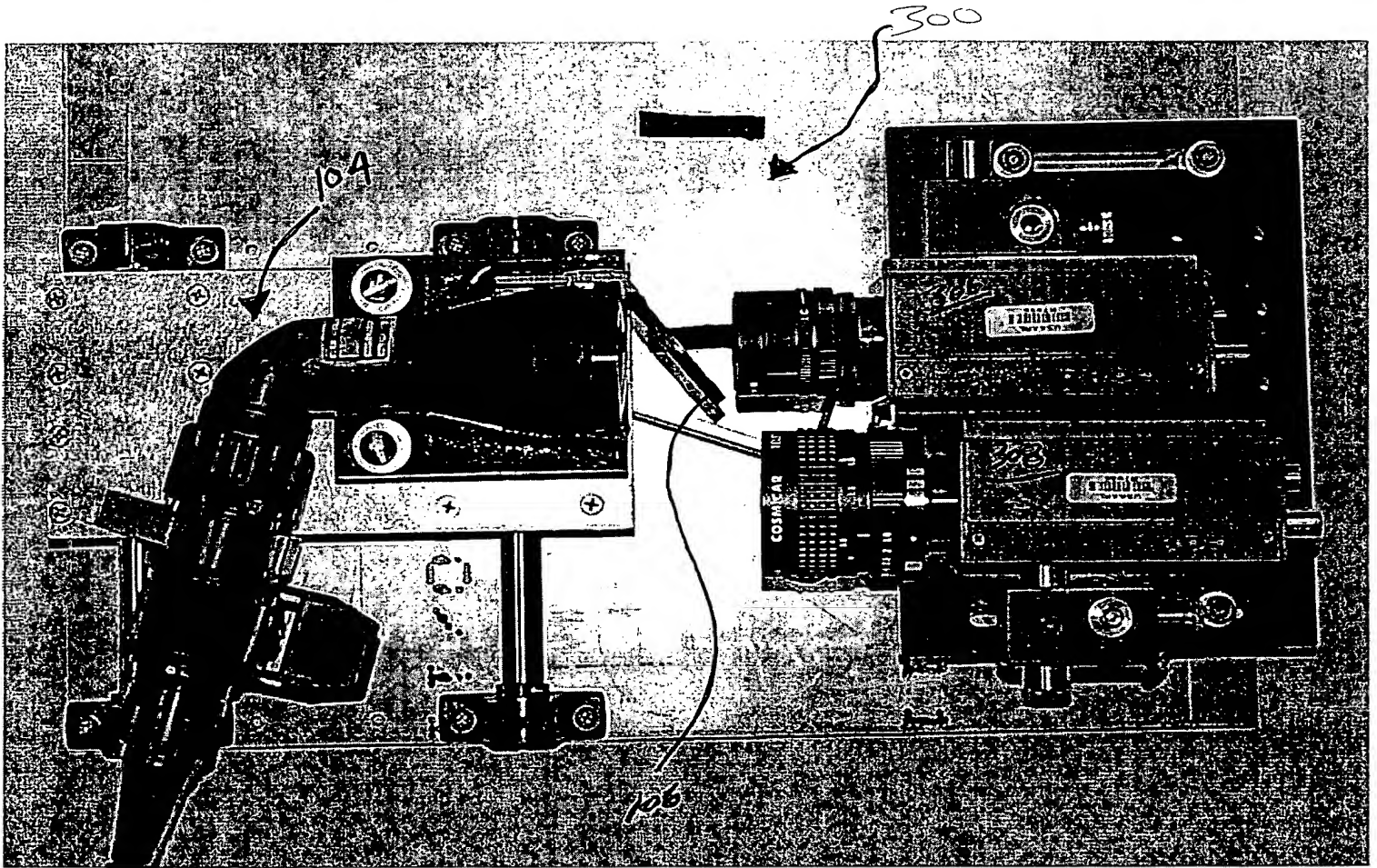


FIG. 3D

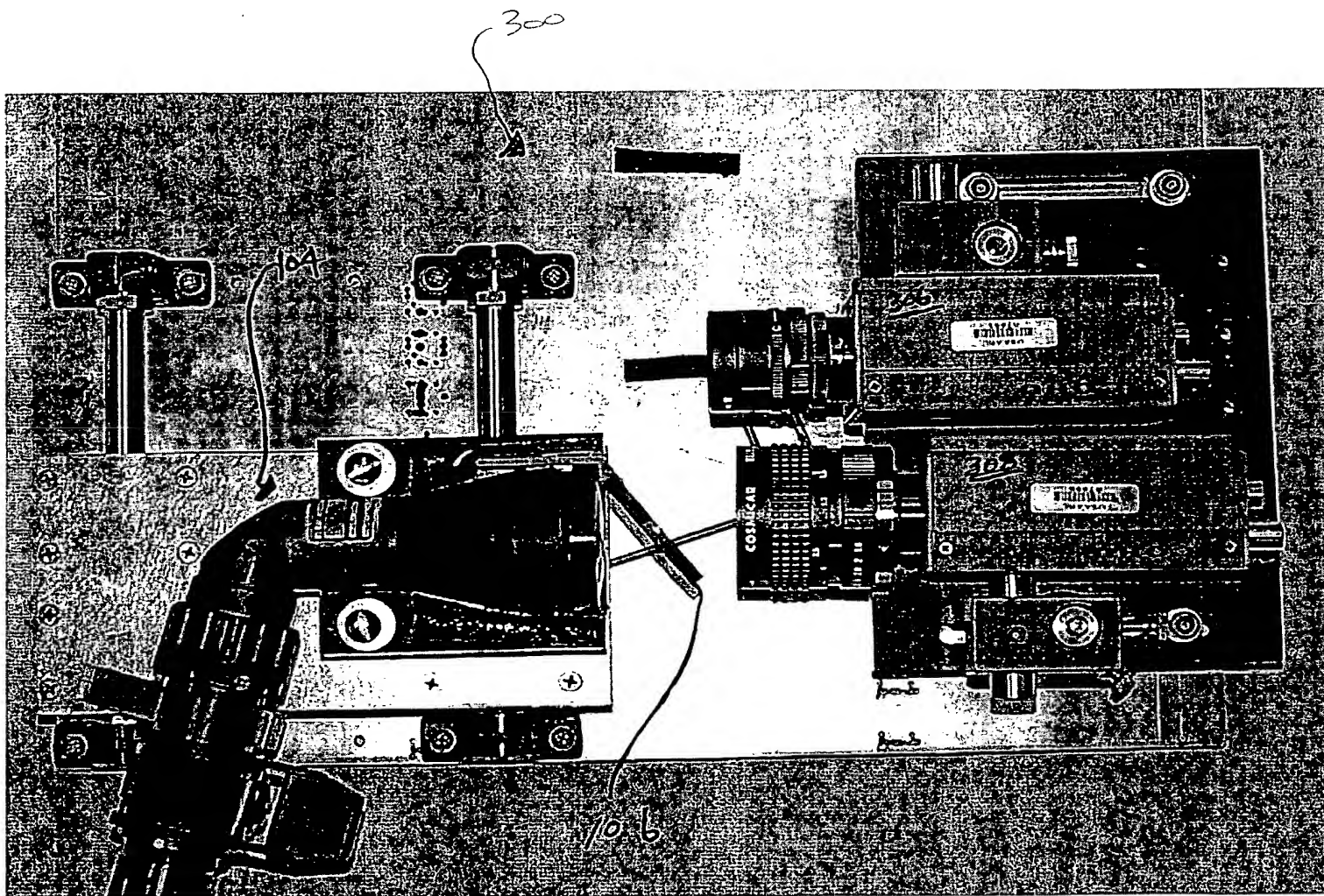


FIG 3 R

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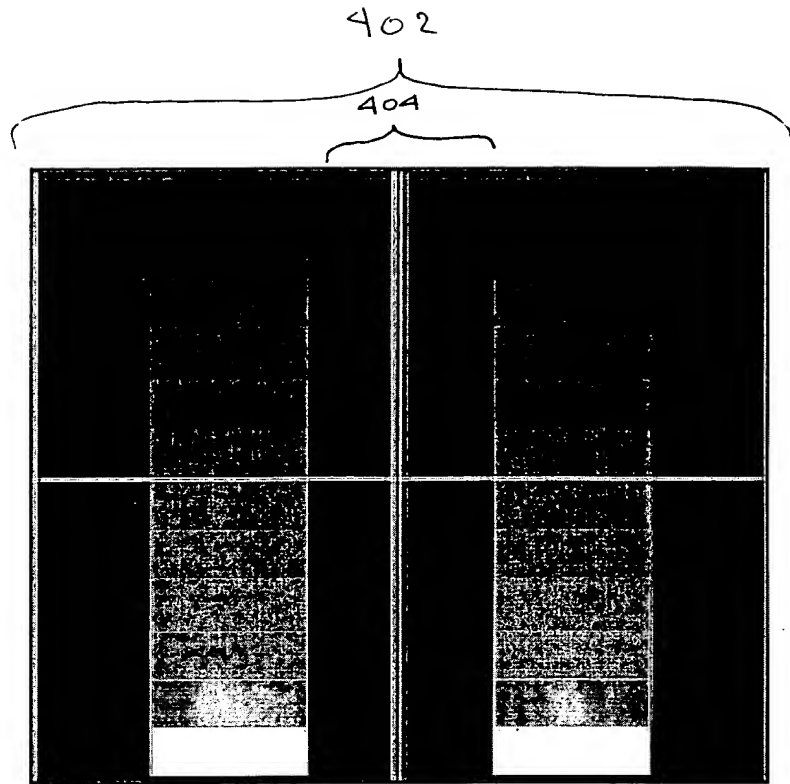
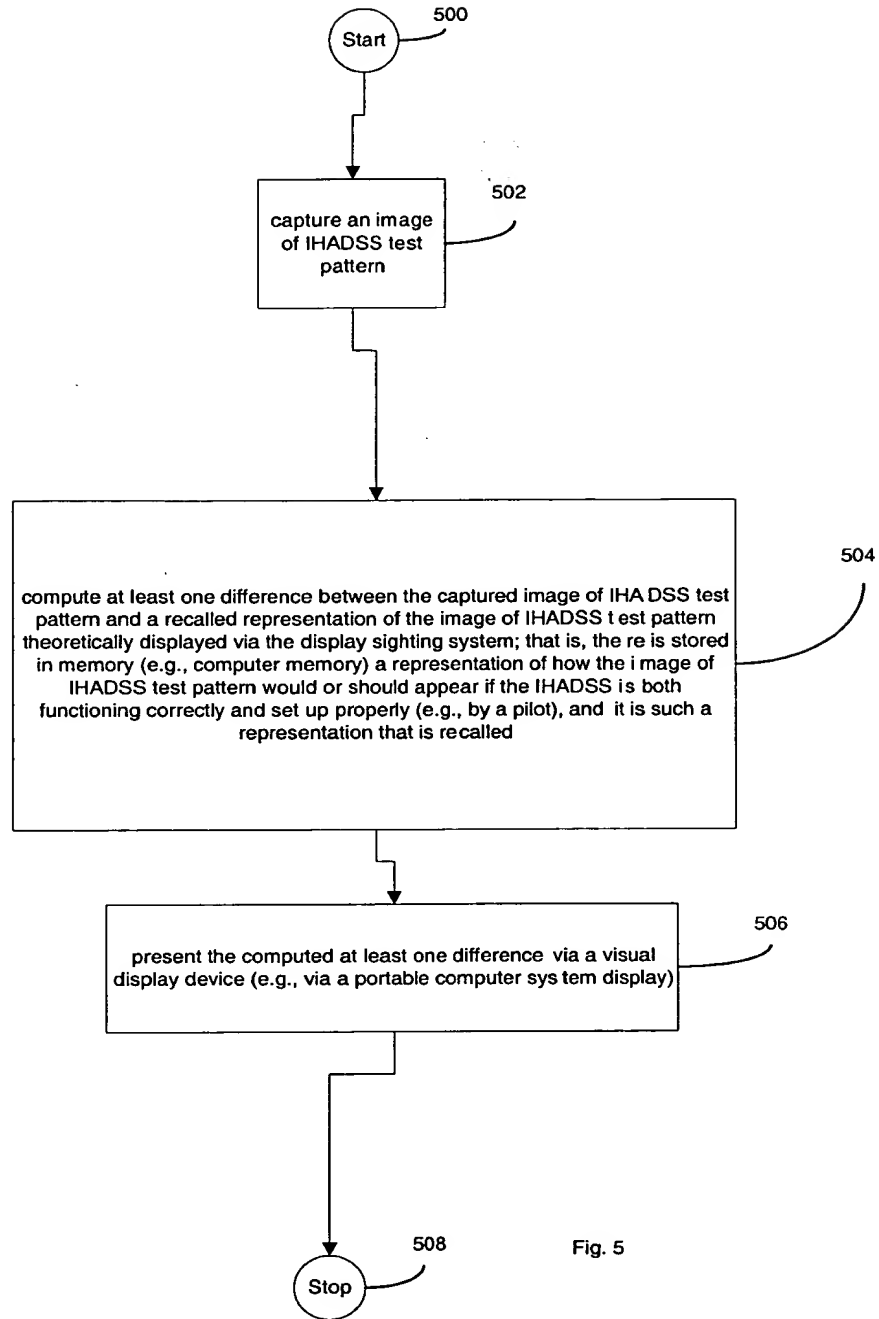


FIG. 9



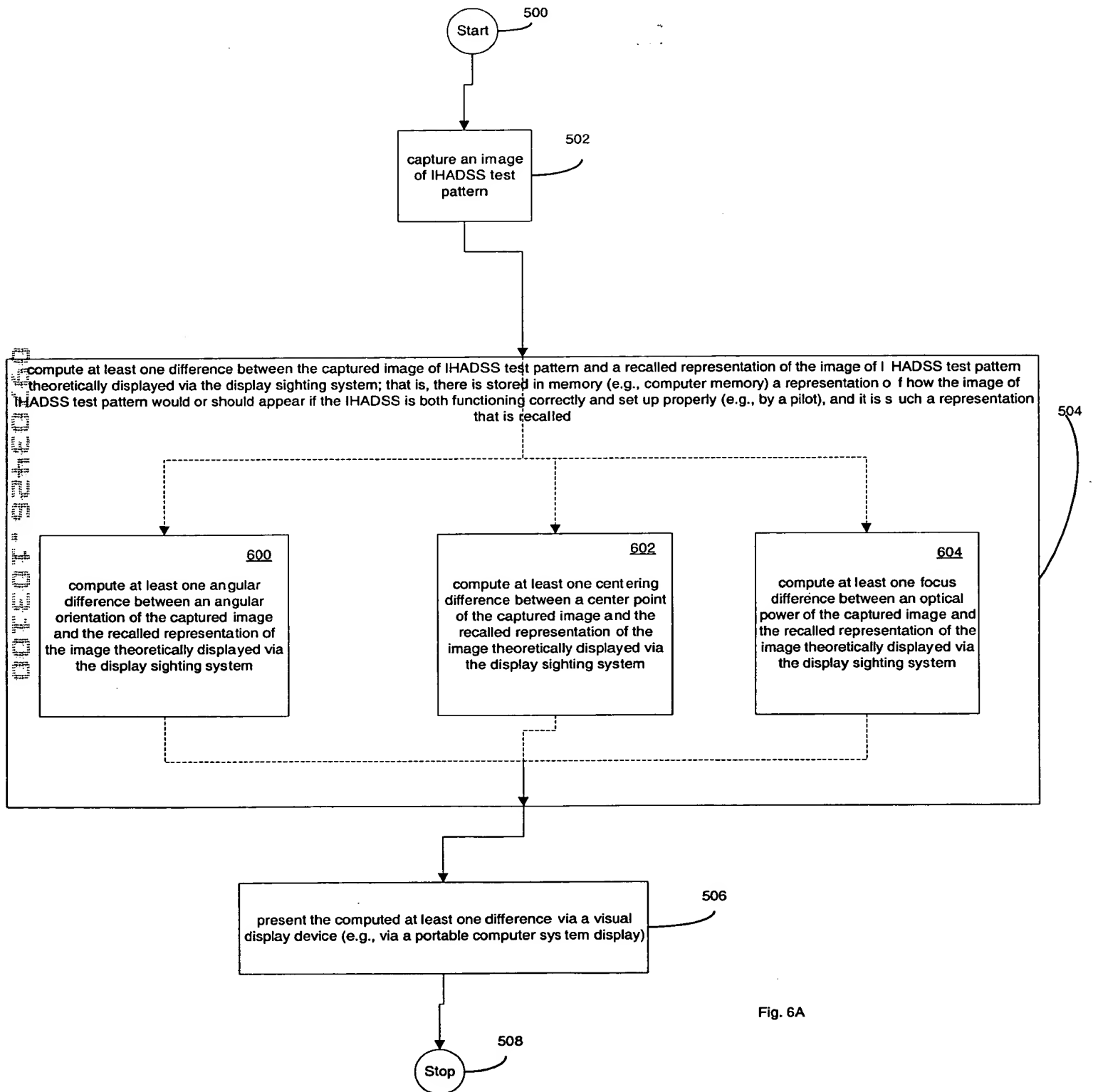


Fig. 6A

Where center of test pattern should appear if IHADSS functioning substantially optimally

Where center of captured image appears; note captured image appears skewed relative to orientation of theoretic image

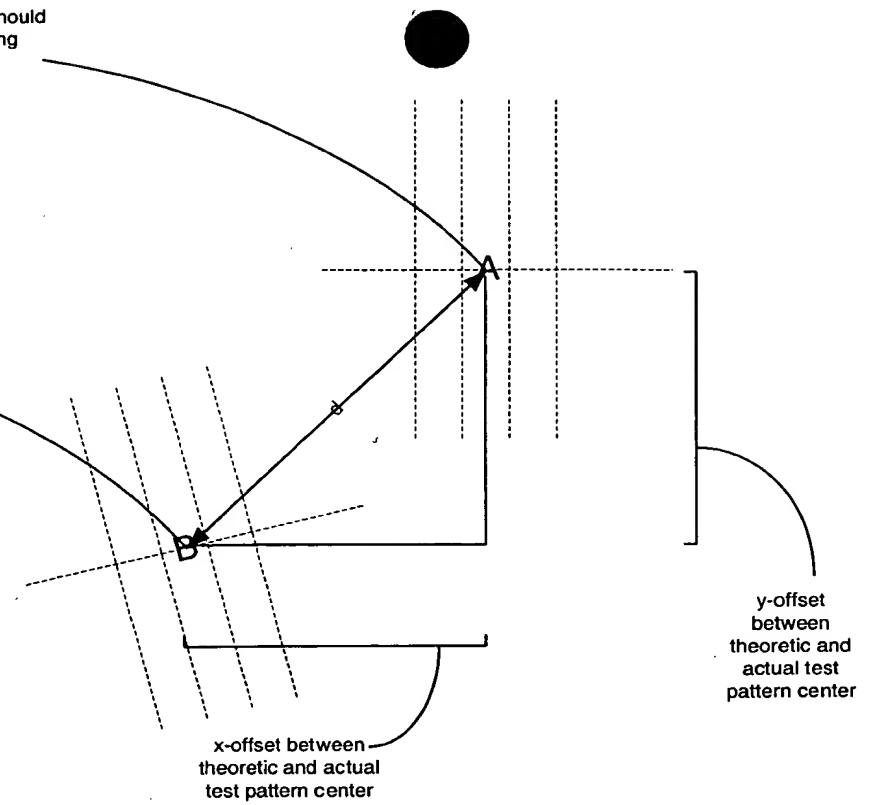


Fig. 6B

Where center of test pattern should appear if IHADSS functioning substantially optimally

Where center of captured image appears; note captured image appears skewed relative to orientation of theoretic image

Point chosen to be on vertical line of captured image

x distance along the "x-axis" generated by right triangle drawn on A and B

y distance along the "y-axis" generated by right triangle drawn on A and B

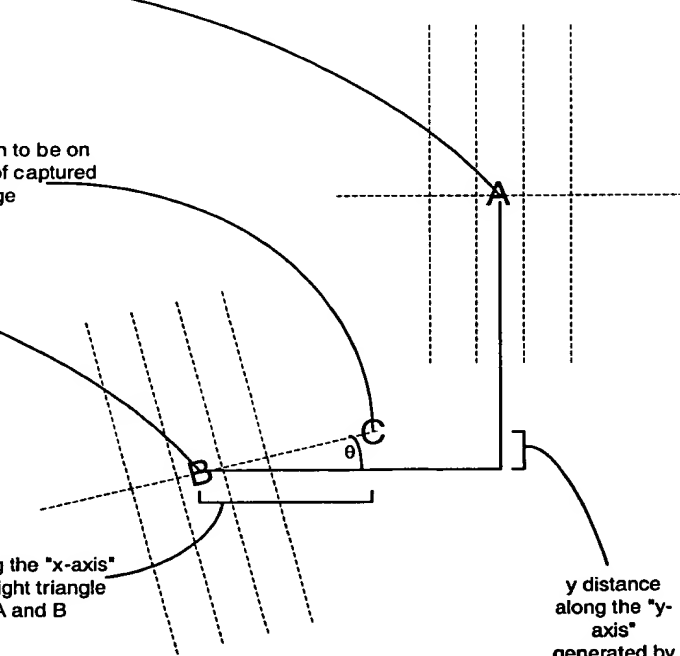


Fig. 6C

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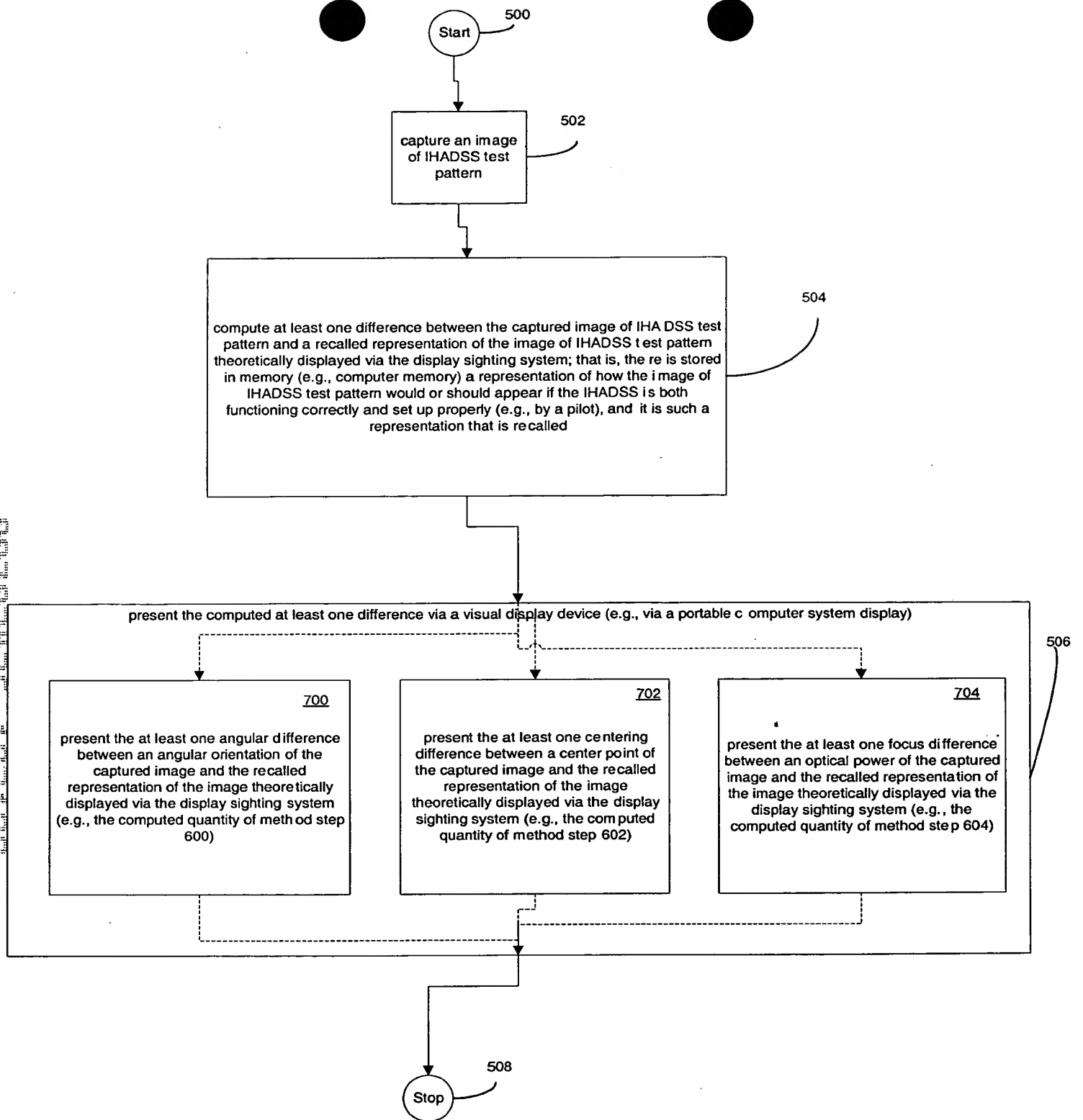


Fig. 7

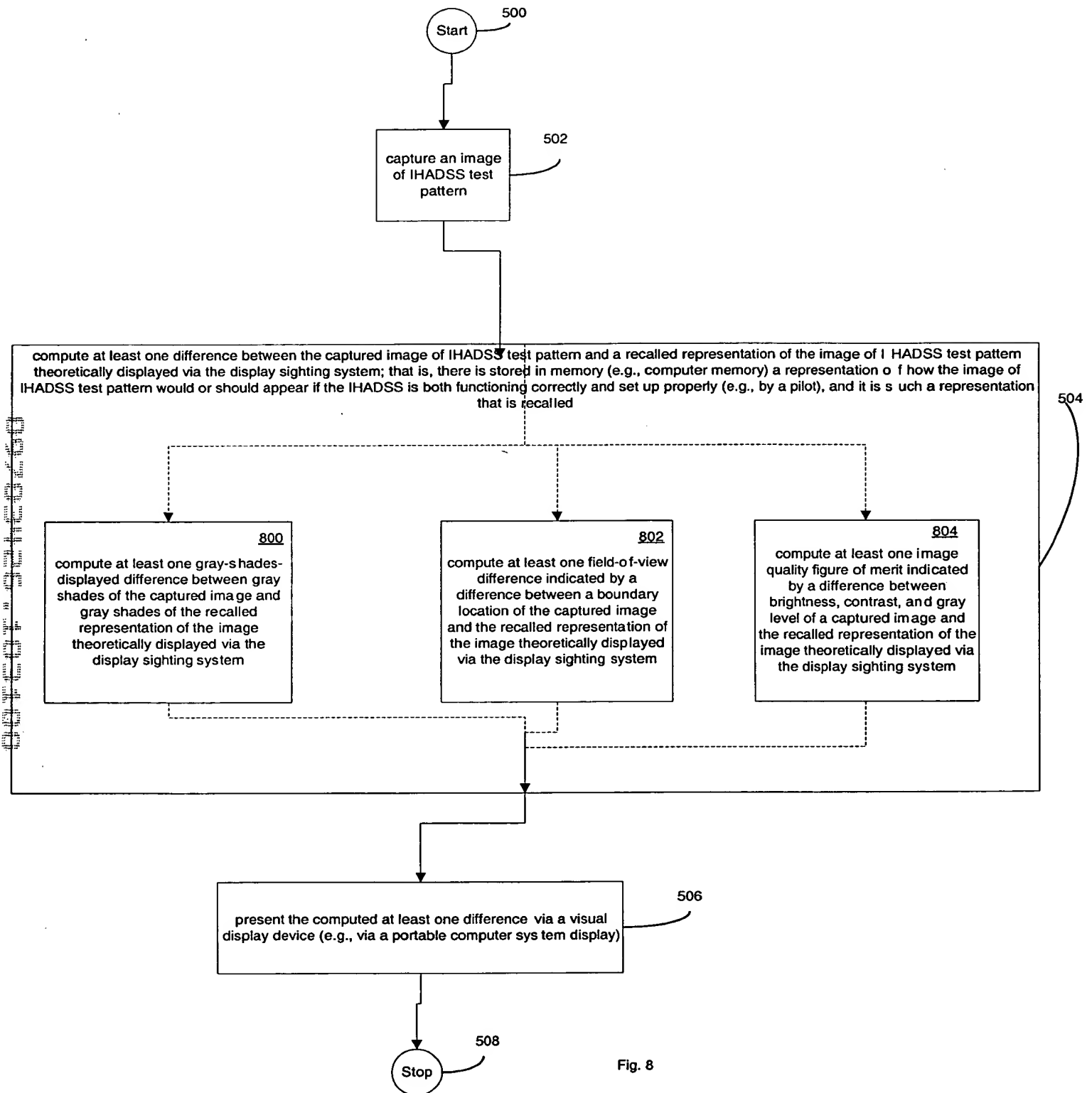


Fig. 8

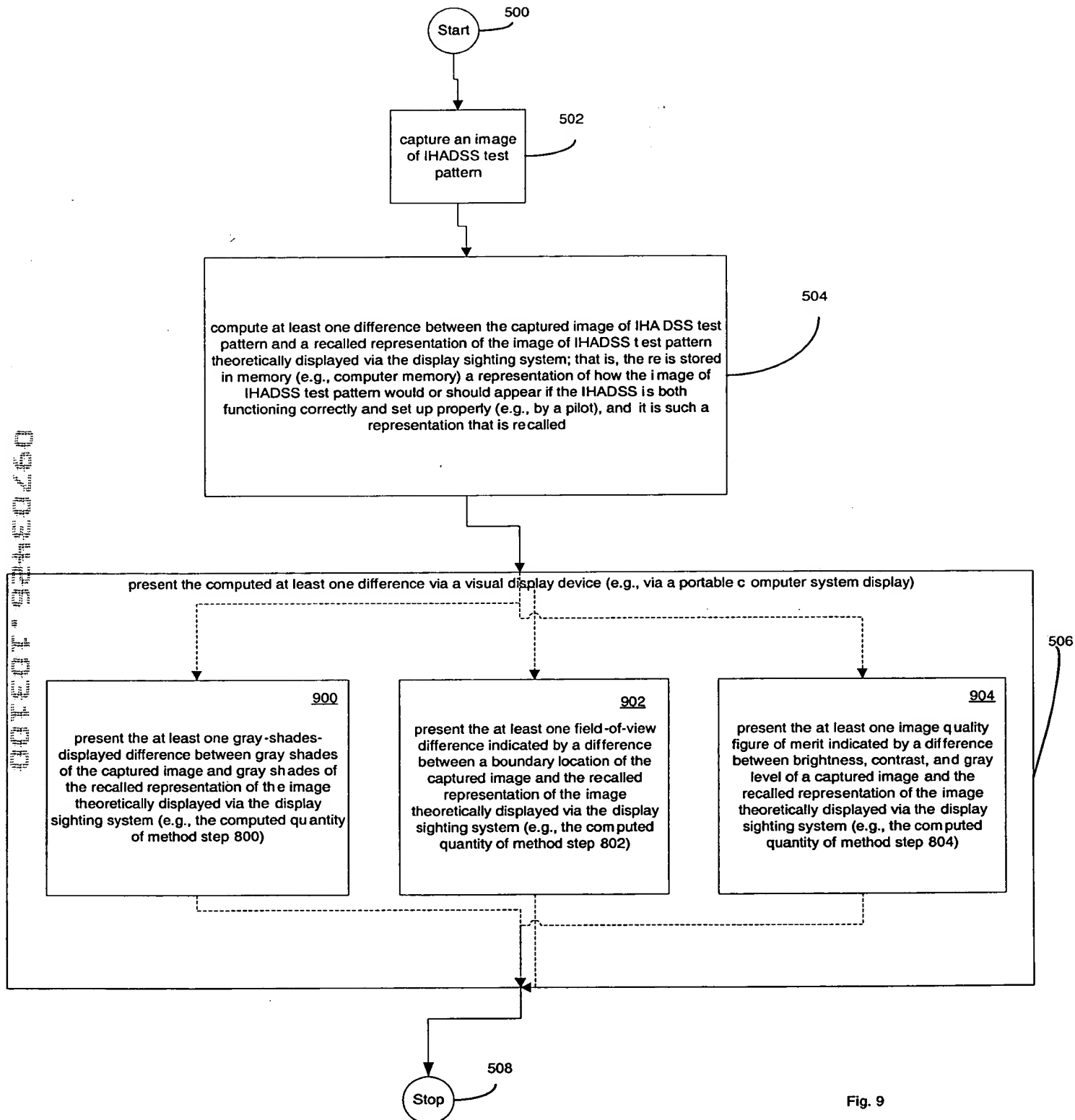


Fig. 9

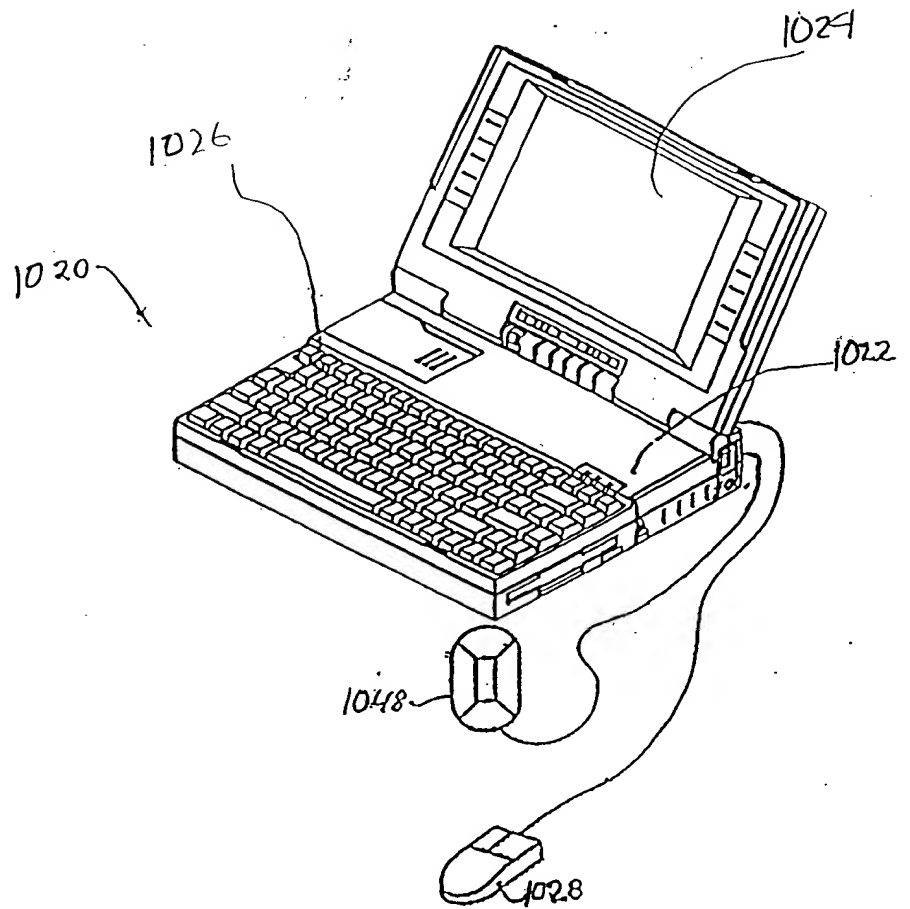


FIG 10



Figure A1. The IHADSS

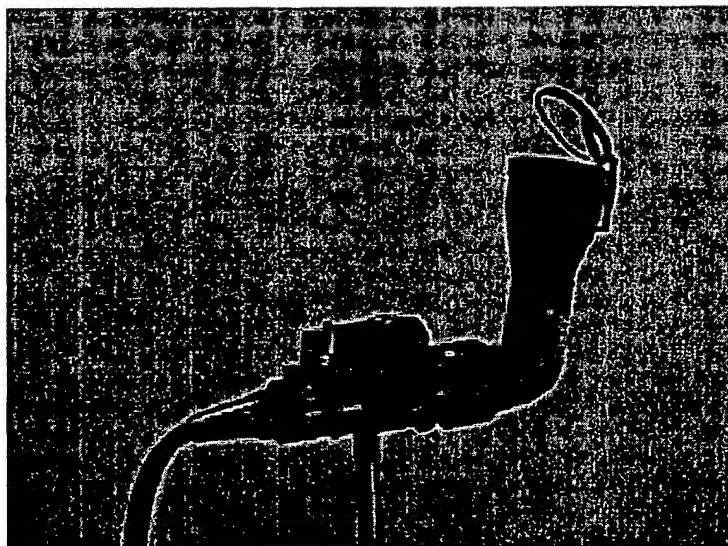


Figure A2. The IHADSS HDU.

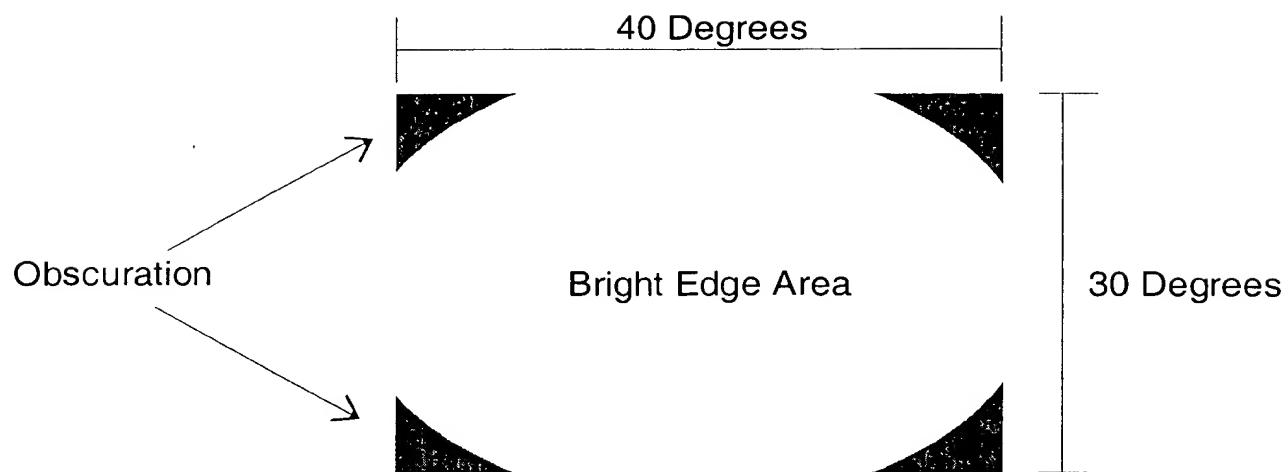


Figure A3. Display size.

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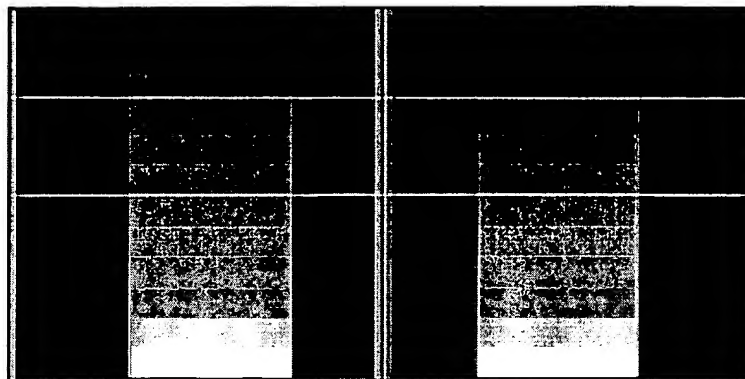


Figure A4. IHADSS built-in test pattern.

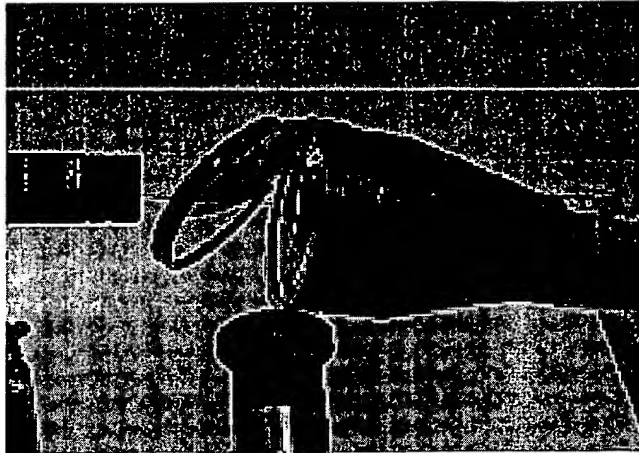


Figure A5. Previous design.

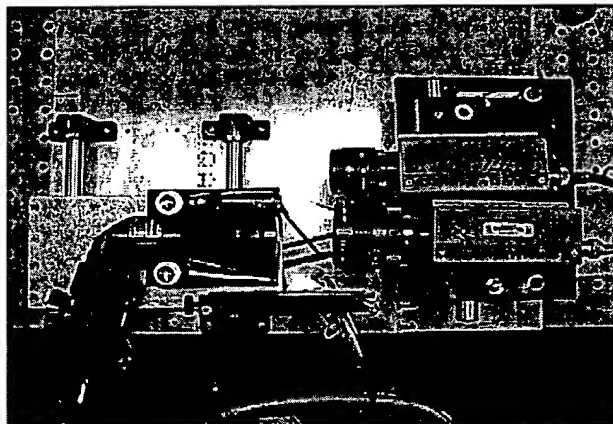


Figure A6. Revised design.

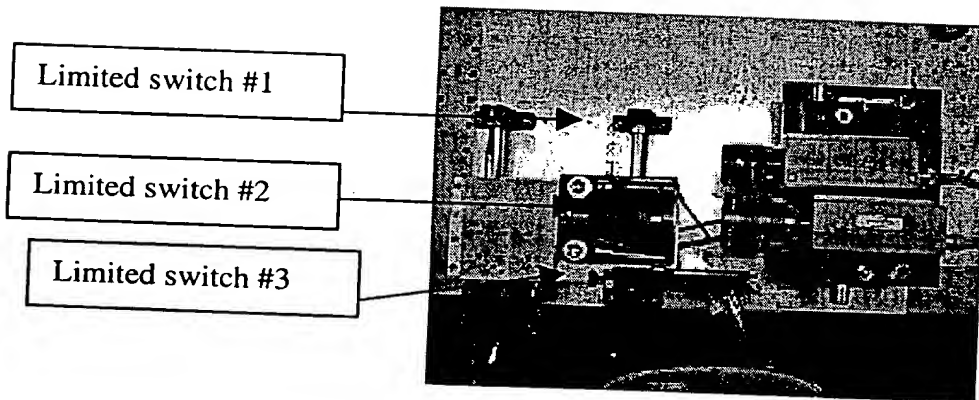


Figure A7. Locations of sensors in proposed HMD fixture design.

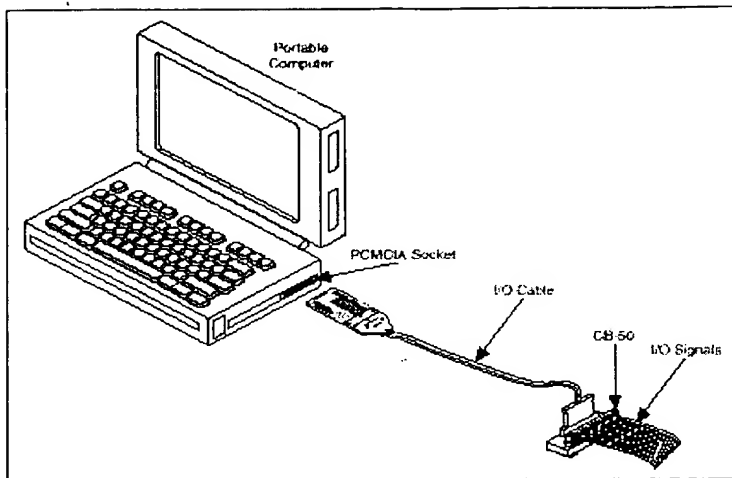


Figure A8. Typical DAQCard-DIO-24 configuration.

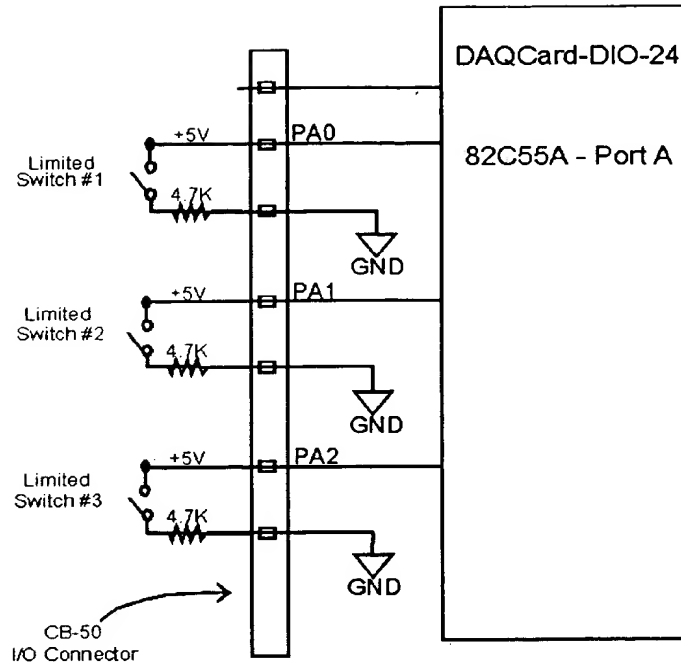


Figure A9. Schematic diagram of proposed design.
1.

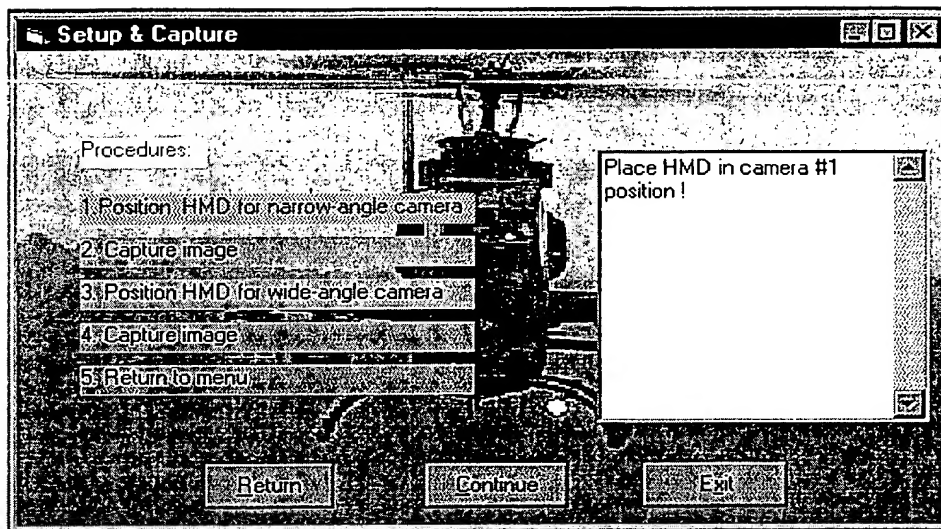


Figure A10. Initial display screen, switches open.

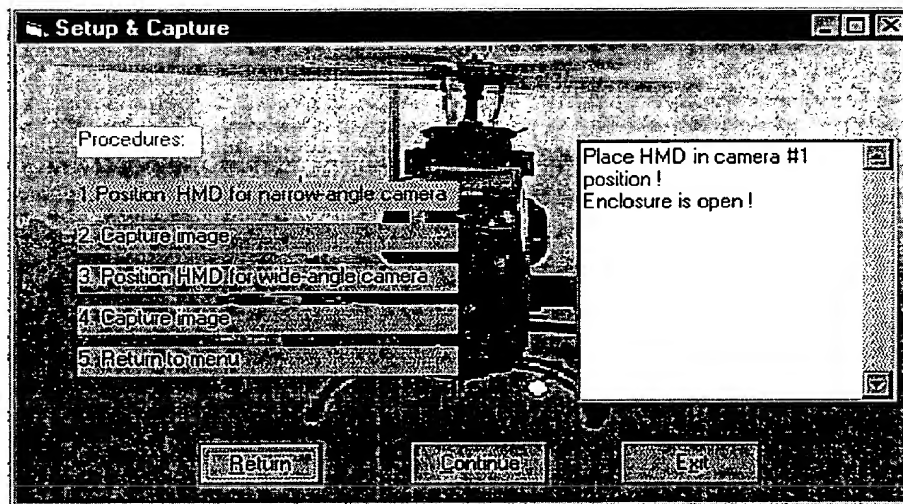
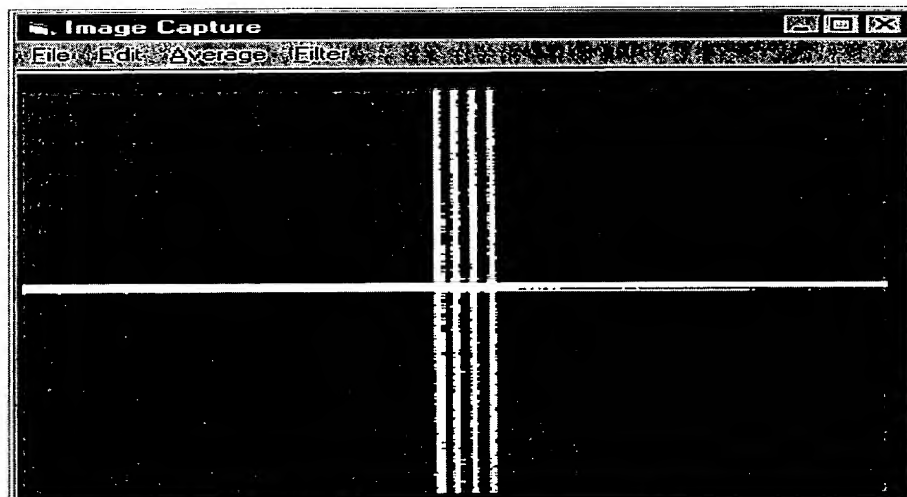


Figure A11. Display screen, Continue button, switches open.

Figure A12. Display screen switches 1 and 2 pressed.



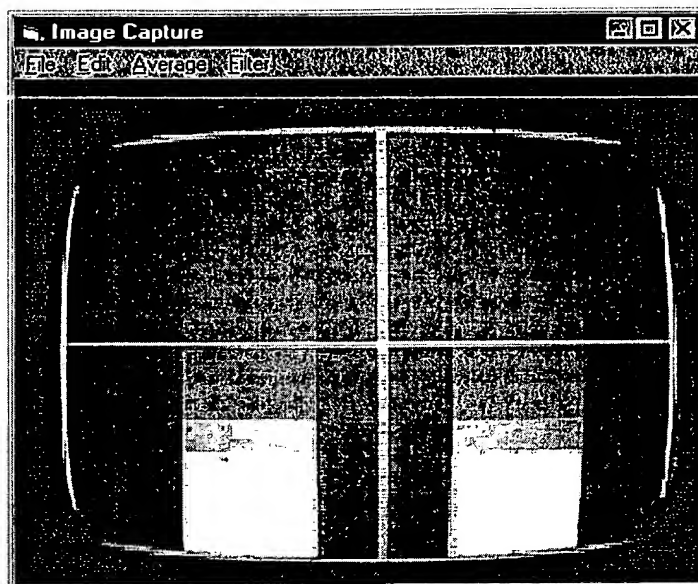


Figure A14. Screenshot of image capture module.

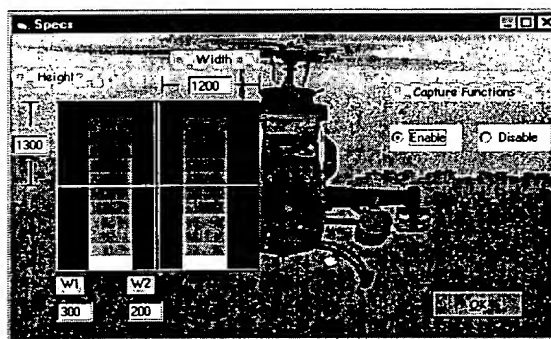
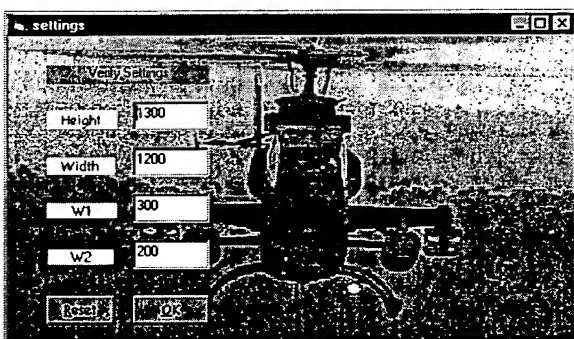


Figure A15. Screenshots of parameter setting display screens.

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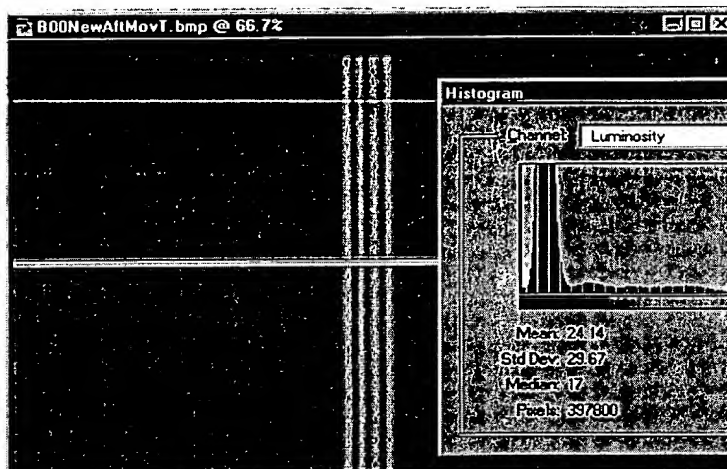


Figure A16. Original image.

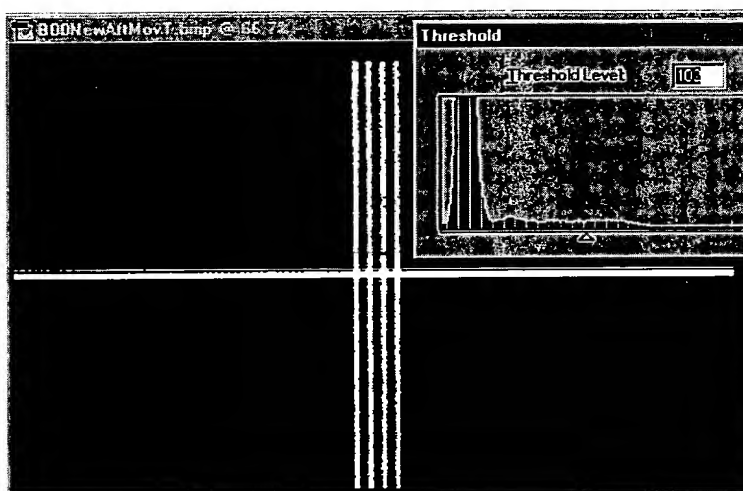


Figure A17. Image after binary processing.

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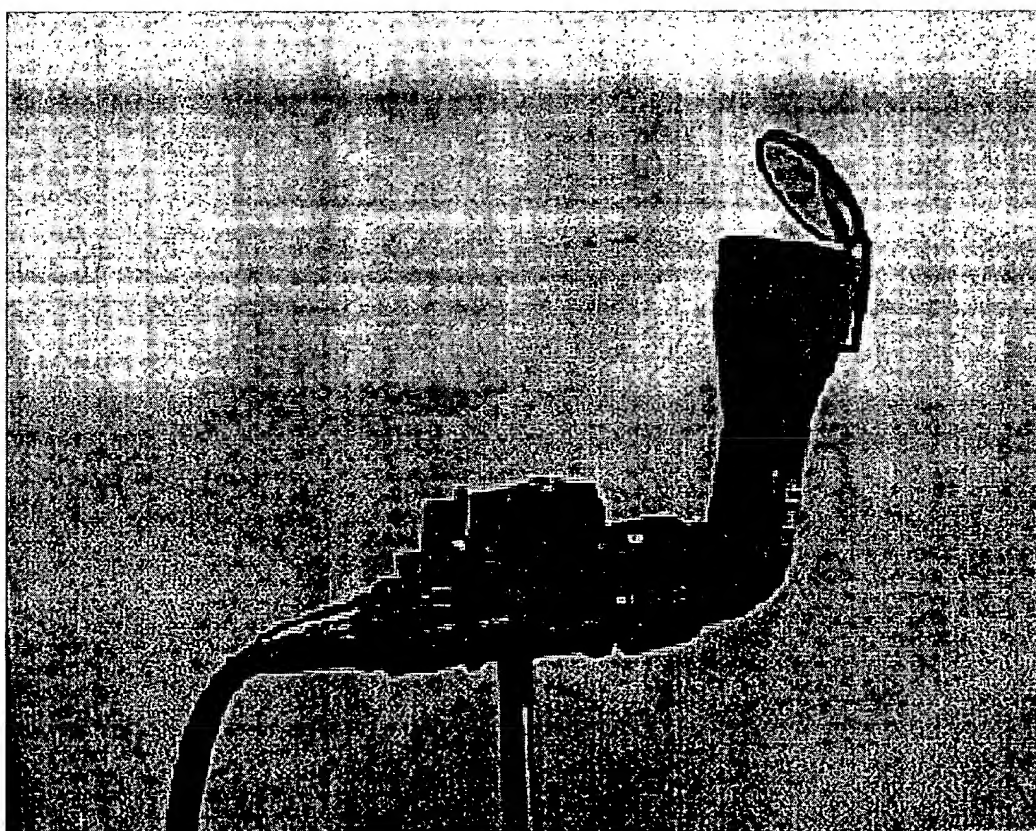


Figure B2. The IHADSS HDU.

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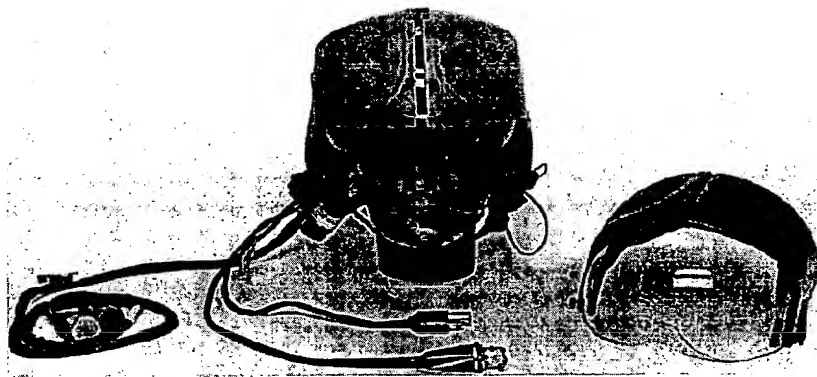


Figure B1. The IHU of the AH-64 IHADSS.

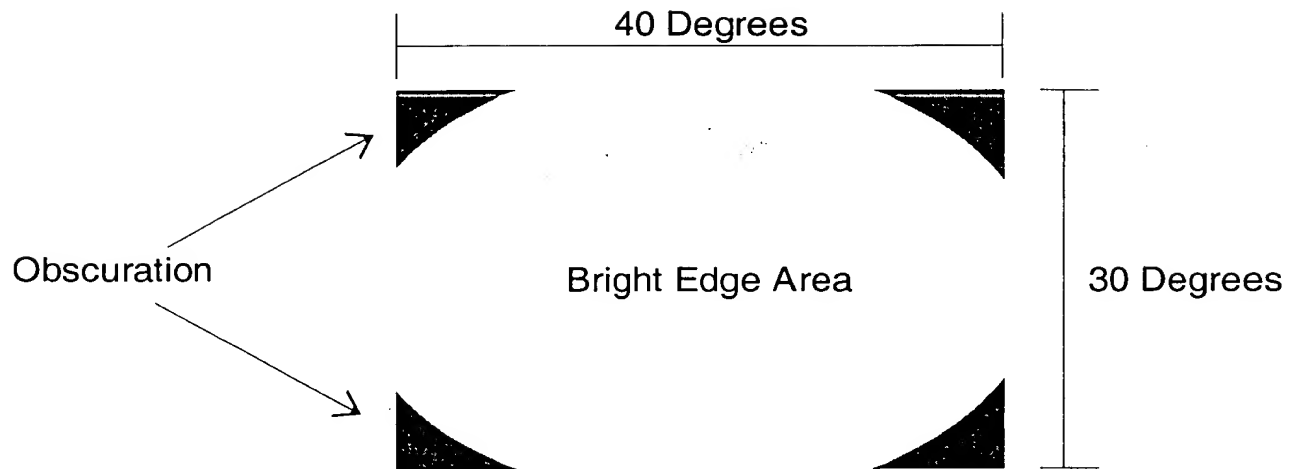


Figure B3. Display size.

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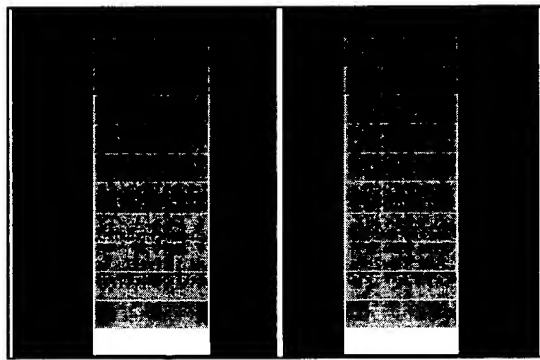


Figure B4. Test pattern from the
IHADSS HMD.

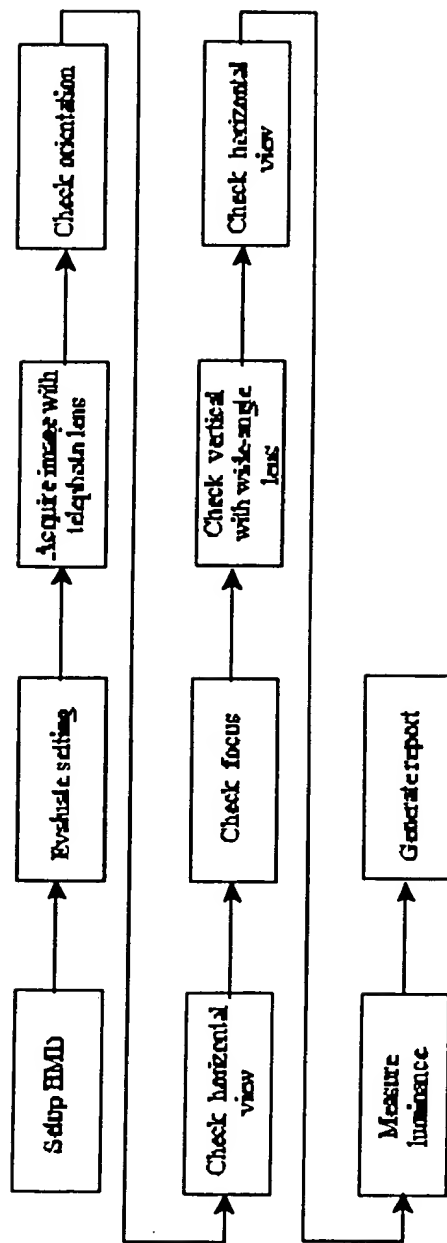


Figure 5. Flow chart for HMD prototype tester operation.

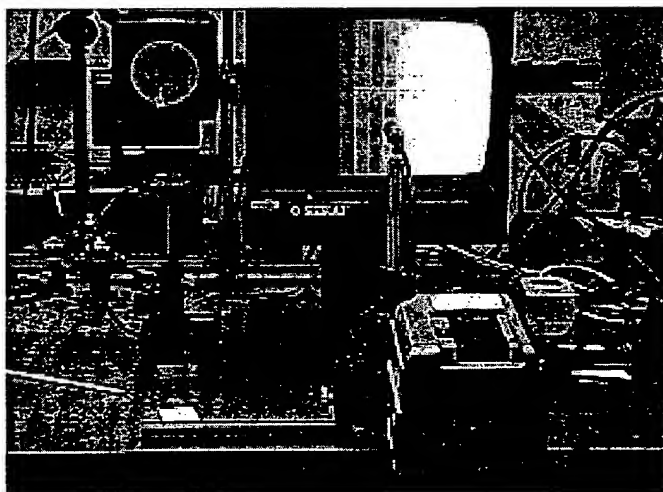


Figure B6. Experimental setup for camera sensitivity analysis.

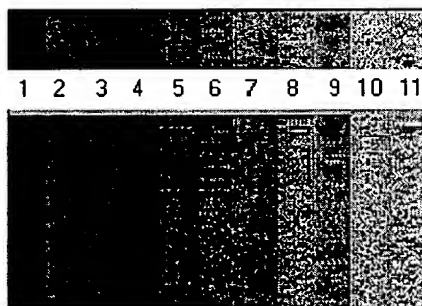


Figure B7. Sampling locations on the test pattern.

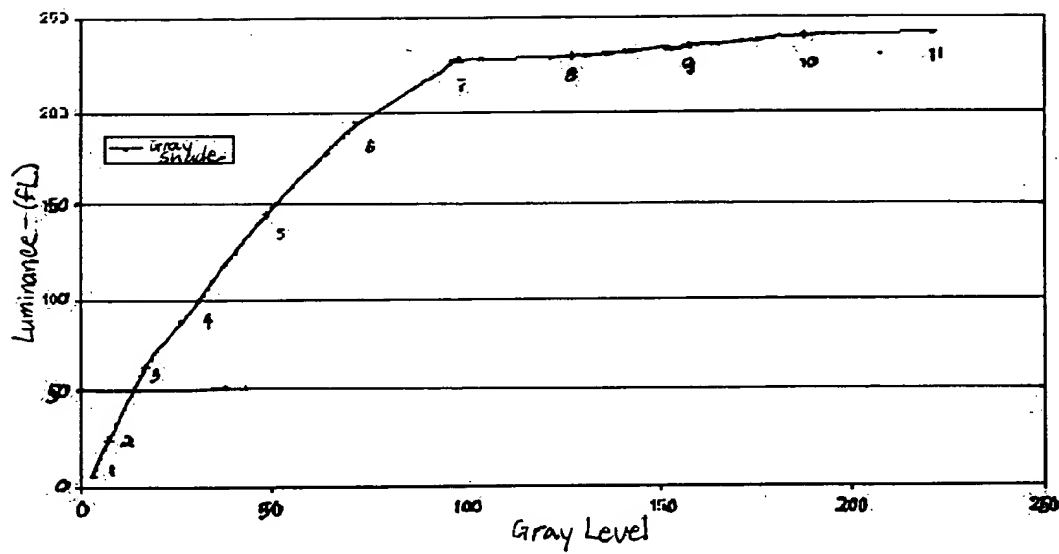


Figure B8. Plot of photometer and CCD
camera data.

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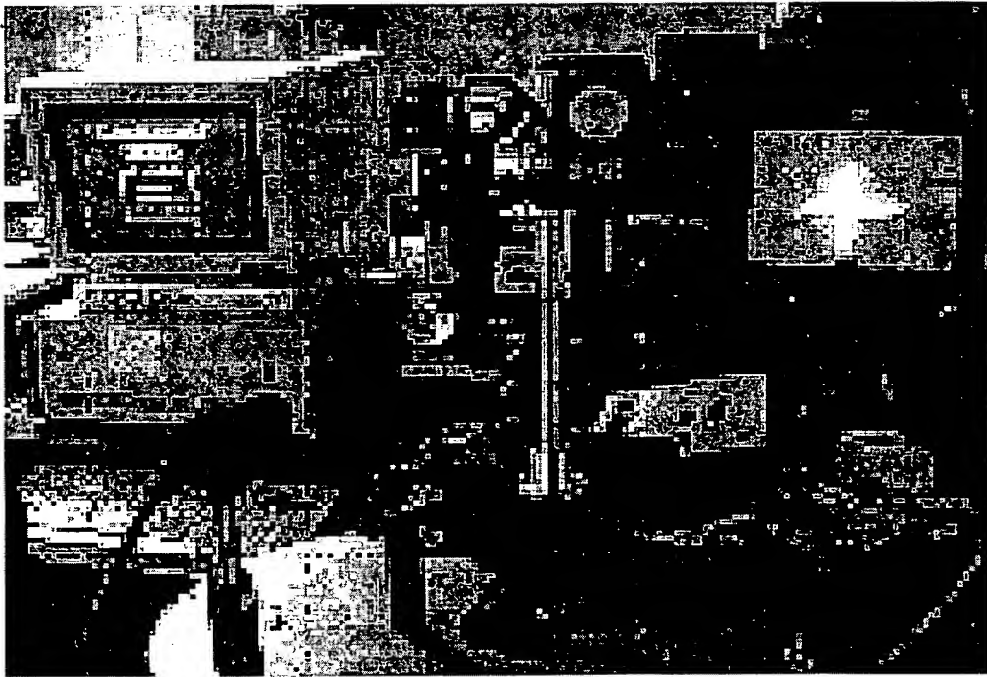


Figure B9. Set up for test pattern measurement.

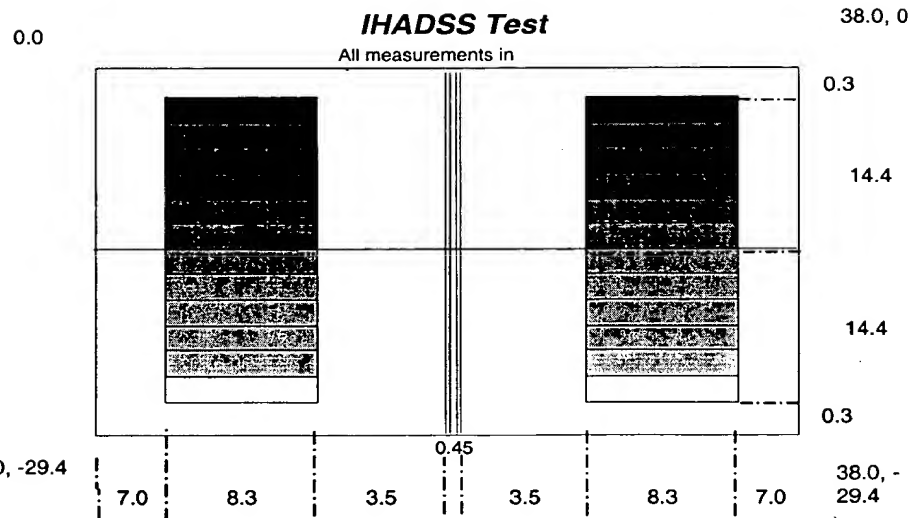


Figure B10. Test pattern design based on measurement results.

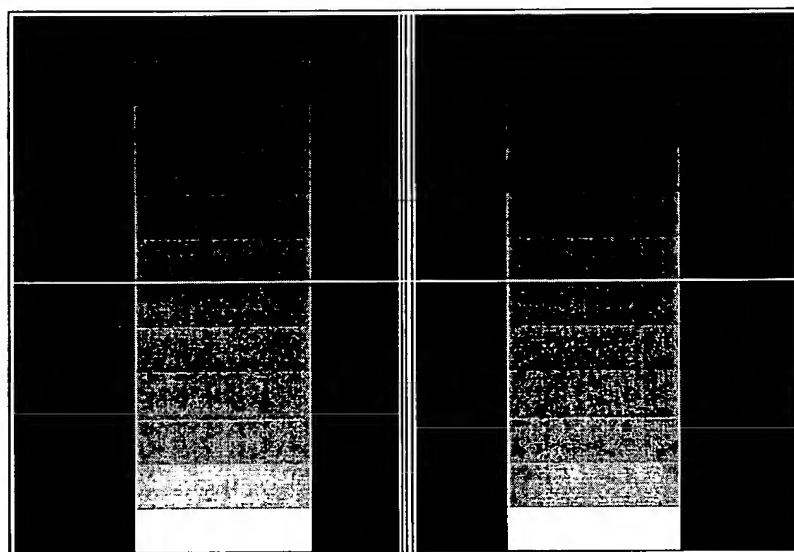


Figure B11. Replicated test pattern image.

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001601 9240260

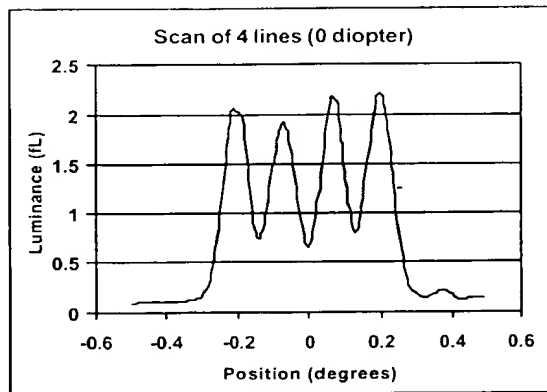


Figure 12. Measurement of luminance of the center lines.

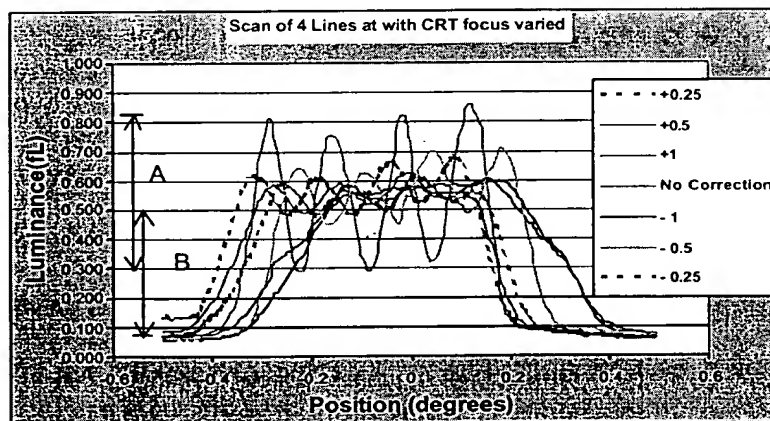


Figure 13. Center lines measurement with varied focus.

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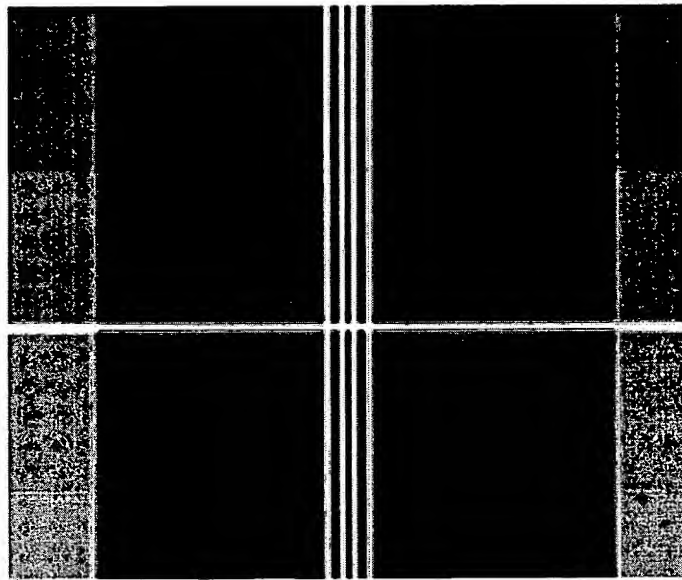


Figure B14. Designed test pattern with focus on the center lines.

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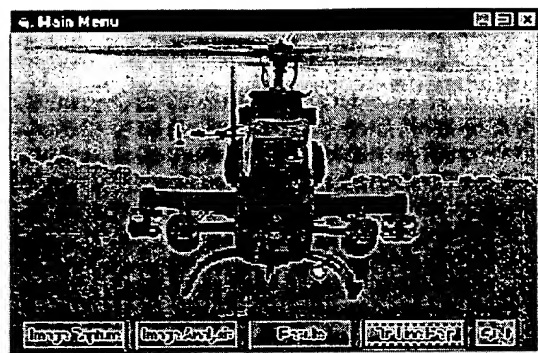


Figure B15. Opening screen of prototype software.



Figure B16. Image capture module .

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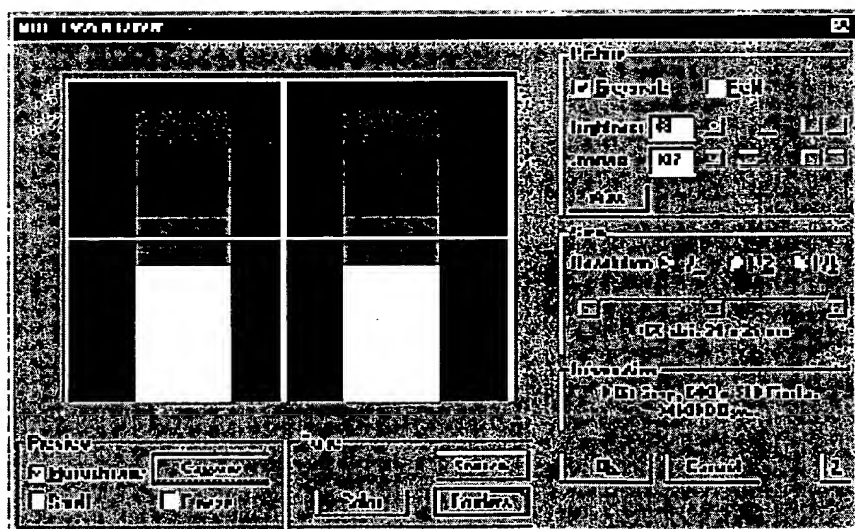


Figure B17. Image capture component.

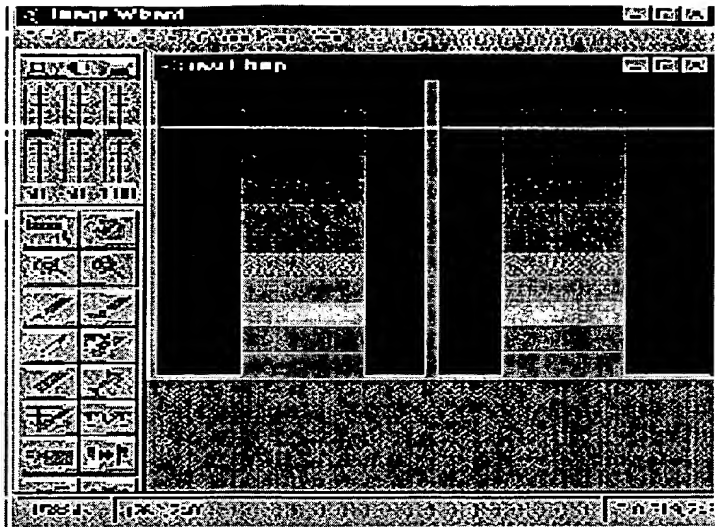


Figure B18. Image processing component.

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001E01 924E0260

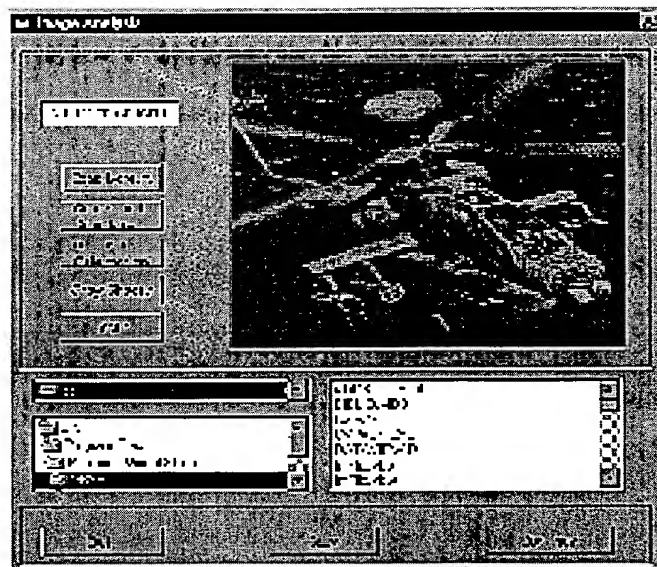
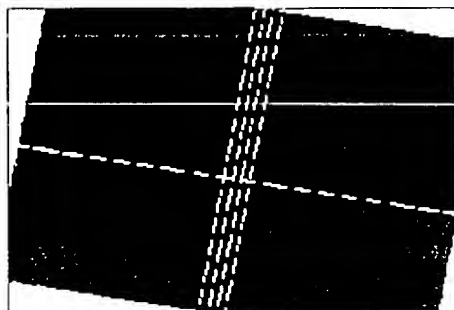
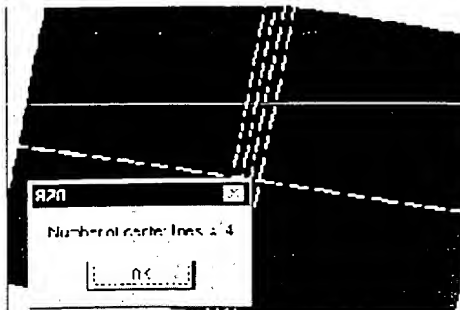


Figure 69. Image ~~and~~ analysis and interpretation module.

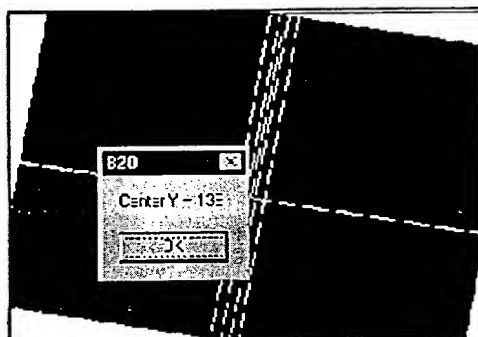
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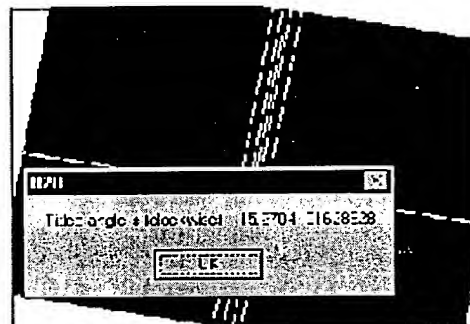
(a)



(b)



(c)



(d)

Figure 20. Tilted test pattern binary images from image analysis module.

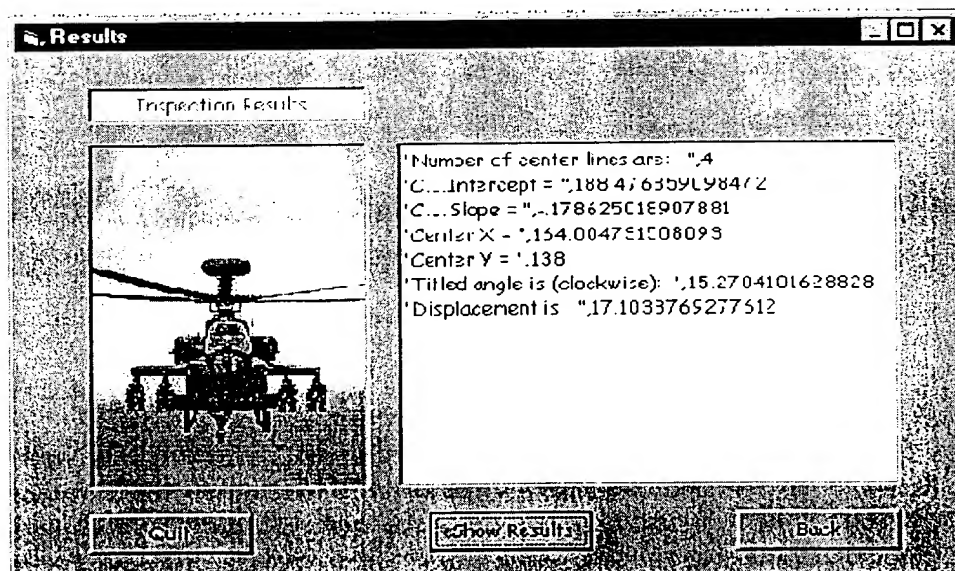


Figure 21. Overall testing results of an HMD.

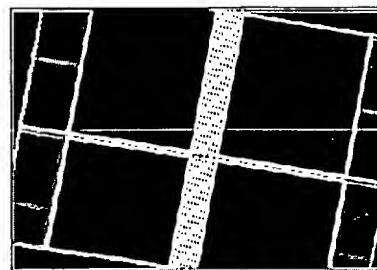
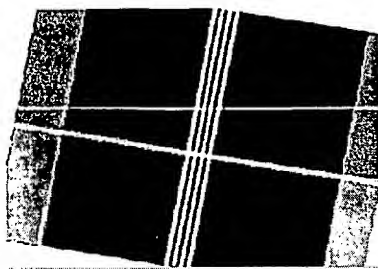


Figure B22. Tilted test pattern before (left) and after (right) Sober edge detection.

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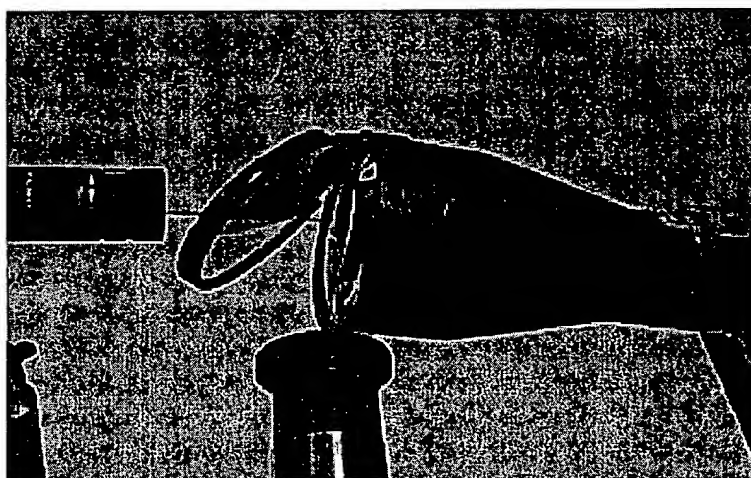
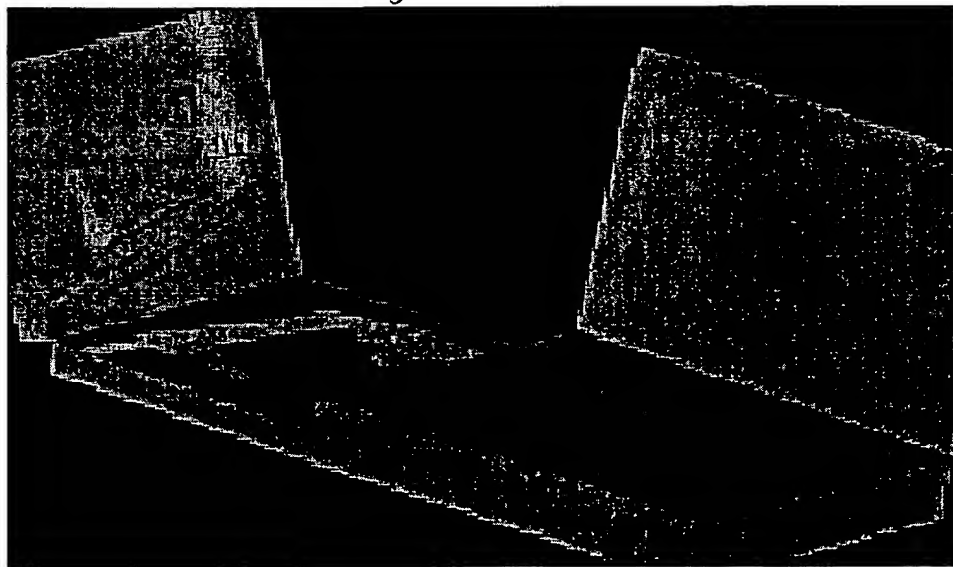


Figure B23. Investigation of CCD image capture arrangement.

Figure B24. CAD concept of prototype hardware design.



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